



Dairy Newsletter

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Why monitor dry matter content of forages?

Rations for dairy cattle are usually formulated on a DM basis even though we realize that cows are fed "as is". Therefore, if the DM content of the forages changes the relative makeup of the diet has changed from what you paid your nutritionist to formulate. Consider a diet formulated to contain 10 lb of DM from haylage that was 30% DM. That means that 33.2 lb of wet haylage is being fed each day. However, if the DM content of that haylage changes to 35%, you are now offering 11.7 lb of DM. If haylage is valued at \$45/ton you have wasted \$0.13 by supplying more haylage than your nutritionist recommended plus you probably diluted the concentrate a little that will reduce milk yield. Conversely, if the DM content of your haylage dropped to 25% you have shorted your cows by the nutrients in 1.7 lb of haylage. Assuming that 1 lb of DM is worth about 2 lb of milk this is almost 3.5 lb of lost milk! Equipment to measure forage DM can be purchased from many farm supplies for approximately \$350. Alternatively, many university web sites provide directions for measuring forage DM using a microwave.

What is an additive really worth?

With high feed prices it is not unusual that dairy producers are bombarded by salesmen promising increases in feed intake, milk yield, feed conversion efficiency or any combination of those. However, before one uses these types of products, they need to evaluate how much this will cost and determine if it will produce increased profit. For this exercise, I will assume that average production is 80 lb of 3.7% fat, 3.1% true protein milk and the average cow is consuming 52 lb of dry matter (DM) each day. Mail box milk price is \$17.20/cwt and feed costs are \$5.60 / cow / d. Therefore, each pound of milk is worth \$0.172 and each pound of DM cost \$0.108. If we assume that one pound of DM will have the nutrients for an additional 2 lb of milk, then we make a "profit" of \$0.236 each time that a cow consumes an additional pound of DM. This "rule of thumb" will not hold true at all production levels. As cows produce more milk, the marginal efficiency that they convert feed to

milk decreases so we may not realize the full \$0.236 for each additional increase in feed intake. We also haven't considered all of the other costs associated with this increase. There is an increase in the amount of labor needed to provide the additional feed. There will be additional wear on the feeding equipment resulting in quicker replacement times. For ease of this exercise, let's assume that these increases are worth 2 cents per day for every 100 cows. In a herd of 100 cows milking time will increase by approximately 16 minutes with a 2 lb increase. If you pay your milker \$10/ hr this extra time cost \$2.66 per milking or \$0.0266 per cow per milking. This does not include any cost for increased energy usage during this time or extra wear on the milking equipment. There is a real cost associated with having to store the additive and have on hand for each feeding. This is hard to completely discover but includes increased buildings and equipment needed for acceptable storage of the additive. The lost opportunity to invest your money into other enterprises on the farm should also be considered. For this exercise, I will assume that these costs amount to an additional 2 cents for every 100 cows. Finally, we need to consider the actual cost of purchasing the additive. Most additives will cost between 5 and 10 cents per cow per day. Therefore, our additive will cost between \$5 and \$10 per day for a herd of 100 cows. When all of these cost and profits are combined we see that if an additive will result in a 1 lb increase in DM consumption and produce 2 lb increase in milk production there is potential for profit. The profit should range from \$0.109 to \$0.159 per cow per day or \$10.90 to \$15.90 per day for a herd of 100 cows. This analysis makes no attempt to quantify any impact of the additive on reproductive performance or herd health that will also impact the yearly profit of the farm. When evaluating whether to use feed additives on your farm, adjust the values in this exercise to reflect information from your farm. Proper evaluation of the profit potential for technology can and should be an important management tool for all successful dairy producers.

Milk replacer feeding rate and immunity

Several years ago there was some excitement from preliminary data that showed improved immunity from increased rates of milk replacer fed to calves. However, analysis of the complete data set revealed no improvement in immunity and other intensive, controlled, peer-reviewed trials have shown no improvements in immunity when calves are fed large amounts of high protein milk replacers (J. Dairy Sci. 88:2718; J. Vit. Nutr. Res. 75:357; J. Dairy Sci. 90:404). Do not let the advertisements and marketing claims fool you into thinking that high feeding rates of a particular milk replacer will improve a calves' immunity. Currently, there are no peer reviewed data to support this idea.

Selenium (Se) Yeast Improved Immunity and Reproduction in Se Deficient Areas

A two state study (FL and CA) was conducted to evaluate the effect of Se yeast on health and reproductive performance of dairy cows (Santos, 2007). Cows were assigned 25 d before expected calving to receive 0.3 ppm Se from either Se Yeast (SY; Sel-Plex®, Alltech, Nicholasville, KY) or sodium selenite (SS) through 80 d post-partum.

In FL, SY increased plasma Se concentrations, but not in CA. Cows fed SY had smaller incidence of purulent vaginal discharge in FL. Selenium yeast decreased the frequency of multiparous, but not primiparous cows with elevated rectal temperatures. Treatment failed to alter first service pregnancy rates in CA and FL and second service pregnancy rates in CA. However second service pregnancy rate in FL was greater for cows fed SY (17%) vs. cows fed SS (11%). Researchers hypothesized that cows fed SY were better able to reestablish an embryo-trophic environment at second service following either early or late embryonic losses.

In FL, but not in CA, cows fed SY had improved immunity as measured by improved neutrophil function. Selenium yeast improved neutrophil function at parturition in multiparous cows and at 7, 14, and 37 d postpartum in primiparous cows. Adaptive immunity was improved in multiparous cows fed SY but not in primiparous cows.

These results indicate that SY improved reproduction and measures of immunity in Se deficient areas (FL) and during heat stress.

Santos, JEP. 2007. Impact of Nutrition on Dairy Cattle Reproduction. Pg. 35 *in* Mid-South Rumin. Nutr. Conf. Arlington, TX.

Products to Consider for Heat Stress

All areas of the US will experience some heat stress this summer. Here are some products to consider in order to control the effects of heat on dairy cows. With strong milk prices this year, anything that is proven to alleviate the effects of heat stress on milk production will likely be profitable.

The most effective products are curtains (open), roof ridge vents, sprinklers and fans (over the feed alley and beds, and in the holding area). Don't forget to cool dry cows and keep calves and heifers out of the sun as much as possible.

Once optimum cooling systems are in place, here are some feed additives and strategies that can be helpful during warmer months.

Make sure all groups of animals have access to clean water. Allocate high quality forages to lactating cows and specifically high producing strings. Be careful in increasing grain feeding when dry matter intake drops. Ruminant pH is lower in heat stressed cows; therefore increasing grain can increase the risk for acidosis. If higher energy density is needed, consider increasing fat levels in the diet.

Increase DCAD using a combination of sodium (bicarbonate or sesquicarbonate) and potassium carbonate (DCAD Plus). Target levels for DCAD are a minimum of +25 Meq/100 g DM (higher may be better). Minimum K level 1.2% (1.5% even better). Raise Mg to 0.35-0.40%.

Balance protein fractions to reduce energy costs of excreting excess nitrogen.

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